



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/651,181	08/30/2000	Todd A. Dickinson	A-68392-2/DJB/RMS/DCF	2424
7590	11/05/2003		EXAMINER	
FLEHR HOHBACH TEST ALBRITTON & HERBERT LLP Suite 3400 Four Embarcadero Center San Francisco, CA 94111-4187			CHAKRABARTI, ARUN K	
			ART UNIT	PAPER NUMBER
			1634	

DATE MAILED: 11/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. <b>09/651,181</b>	Applicant(s) <b>Dickinson</b>
	Examiner <b>Arun Chakrabarti</b>	Art Unit <b>1634</b>



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1)  Responsive to communication(s) filed on Sep 25, 2003.
- 2a)  This action is FINAL.      2b)  This action is non-final.
- 3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

#### Disposition of Claims

- 4)  Claim(s) 1-10, 17-23, 29-31, and 48 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5)  Claim(s) \_\_\_\_\_ is/are allowed.
- 6)  Claim(s) 1-10, 17-23, 29-31, and 48 is/are rejected.
- 7)  Claim(s) \_\_\_\_\_ is/are objected to.
- 8)  Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9)  The specification is objected to by the Examiner.
- 10)  The drawing(s) filed on \_\_\_\_\_ is/are a)  accepted or b)  objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11)  The proposed drawing correction filed on \_\_\_\_\_ is: a)  approved b)  disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12)  The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13)  Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some\* c)  None of:
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14)  Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).  
a)  The translation of the foreign language provisional application has been received.
- 15)  Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- 1)  Notice of References Cited (PTO-892)
- 2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3)  Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_
- 4)  Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5)  Notice of Informal Patent Application (PTO-152)
- 6)  Other: *Detailed Action*

Art Unit: 1634

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 25, 2003 has been entered.

### ***Specification***

2. Claim 1-7, 9-10, 17-19, 21-23, and 29 have been amended and new claim 48 has been added. Claims 1-10, 17-23, and 29-31 and 48 are pending in this application.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary

Art Unit: 1634

skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CAR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-8, 10, 17-23, 29-31, and 48 are rejected under 35 U.S.C. 103(a) over Walt et al. (U.S. Patent 6,023,540) (February 8, 2000) in view of Everett et al. (U.S. Patent 5,649,924) (July 22, 1997).

Walt et al. teach a composition comprising:

a) a substrate with a surface comprising discrete sites;

; and

c) a population of microspheres distributed on the substrate, the microspheres comprising at least a first and a second subpopulation (Abstract and Column 4, lines 10-14 and Column 8, line 65 to Column 11, line 25 and Claim 39 and Figures 5-7).

Walt et al teach a composition wherein at least one subpopulation comprises a bioactive agent (Column 4, lines 10-14 and Column 8, line 65 to Column 11, line 25 and Claim 39).

Art Unit: 1634

Walt et al teach a composition, wherein the substrate comprises a first and a second surface, wherein the first surface comprises the discrete sites, the population of microspheres distributed on the first surface (Column 4, lines 10-14 and Column 8, line 65 to Column 11, line 25 and Claim 39 and Figures 5-7 ).

Walt et al teach a composition, wherein the substrate is a fiber optic bundle (Abstract and Figure 6).

Walt et al teach a composition, wherein the fiber optic bundle comprises wells comprising the microspheres (Figures 4-6 and Column 12, line 1 to Column 13, line 21).

Walt et al teach a composition, wherein the substrate is selected from plastic (Column 5, lines 29-39).

Walt et al teach an array composition comprising:

a) a substrate with a surface comprising discrete sites ();

b) a population of microspheres distributed on the substrate, wherein the microsphere

comprise:

I) a bioactive agent; and

ii) a signal transducer element which is a nucleotide intercalator as well as a fluorophore

(Column 4, lines 10-14 and Column 8, line 65 to Column 11, line 25 and Claim 39 and Figures 5-7).

Walt et al teach an array composition comprising a substrate with a surface comprising discrete sites comprising alternatively shaped wells (Figures 5A-5B and 7A-7B and Claim 57).

Art Unit: 1634

Walt et al teach an array composition, wherein the wall angle is of the alternatively shaped wells is a sloped wall angle (Figures 5A-5B and 7A-7B).

Walt et al teach an array composition, wherein the alternatively shaped wells contain a rounded wall interior (Figures 5A-5B and 7A-7B).

Walt et al teach an array composition, wherein at least one of the alternatively shaped wells is a geometrically shaped well having a cross section selected from a square, a hexagon, a star, a triangle, a pentagon, and a octagon (Figures 5A-5B and 7A-7B).

Walt et al teach an array composition, further comprising a population of microspheres distributed in the wells (Figure 6).

Walt et al teach an array composition, wherein the population comprises at least first and second subpopulation, each of the subpopulations comprising a bioactive agent (Column 4, lines 10-14 and Column 8, line 65 to Column 11, line 25 and Claim 39).

Walt et al does not teach a reflective layer coating the bottom of the well.

Everett et al. teaches a reflective layer coating the bottom of the well (Figure 9 and Column 10, lines 29-60).

Walt et al does not teach a composition, wherein the reflective layer selectively absorbs certain wavelengths of light.

Everett et al. teaches a composition, wherein the reflective layer selectively absorbs certain wavelengths of light. (Figure 9 and Column 10, lines 29-60).

Art Unit: 1634

It would have been further *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to combine and substitute a reflective layer coating the bottom of the well of Everett et al. into the method of Walt et al., since Everett et al. state, "The preferred gold plating is reported by its manufacturer to exhibit an absolute spectral reflectance of better than 40% at 0.5 microns wavelength radiation, and better than 98% from 1.0 to 12.0 microns wavelength radiation (Column 10, lines 47-51)." By employing scientific reasoning, an ordinary artisan would have combined and substituted a reflective layer coating the bottom of the well of Everett et al. into the method of Walt et al., in order to improve the detection of biomolecules. An ordinary practitioner would have been motivated to combine and substitute a reflective layer coating the bottom of the well of Everett et al. into the method of Walt et al., in order to achieve the express advantages , as noted by Everett et al., of a preferred gold plating which exhibits an absolute spectral reflectance of better than 40% at 0.5 microns wavelength radiation, and better than 98% from 1.0 to 12.0 microns wavelength radiation.

Walt et al. in view of Everett et al do not teach a composition, wherein each of the wells is configured to hold a single microsphere.

However, it is *prima facie* obvious that selection of the specific size and configuration of a well represents routine optimization with regard to the size and requirement of the bioactive agent to be assayed and also to the intensity of the fluorescence of the binding complex to be studied, which routine optimization parameters are explicitly recognized to an ordinary practitioner in the relevant art. As noted *In re Aller*, 105 USPQ 233 at 235,

Art Unit: 1634

More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.

Routine optimization is not considered inventive and no evidence has been presented that the specific size and configuration of a well was other than routine, that the products resulting from the optimization have any unexpected properties, or that the results should be considered unexpected in any way as compared to the closest prior art.

5. Claim 9 is rejected under 35 U.S.C. 103(a) over Walt et al. (U.S. Patent 6,023,540) (February 8, 2000) in view of Everett et al. (U.S. Patent 5,649,924) (July 22, 1997) further in view of Toriumi et al. (U.S. Patent 5,896,227) (April 20, 1999).

Walt et al. in view of Everett et al. teach a composition of claims 1-8, 10, 17-23, 29-31, and 48 as described above.

Walt et al in view of Everett et al. do not teach a composition comprising a reflective dielectric coating on the surface.

Toriumi et al teach a composition, wherein the reflective coating is a dielectric coating (Column 7, lines 42-45 and lines 50-52).

It would have been further *prima facie* obvious to one having ordinary skill in the art at the time the invention was made to combine and substitute a composition, wherein the reflective coating is a dielectric coating of Toriumi et al. into the method of Walt et al in view of Everett et al., since Toriumi et al. state, "Preferably the microspheres have a reflective coating on a portion

Art Unit: 1634

thereof, e.g., a hemispheric coating of aluminum, silver or a dielectric coating. Such microspheres will be self-retroflecting (Column 7, lines 42-45). ”. By employing scientific reasoning, an ordinary artisan would have combined and substituted a composition, wherein the reflective coating is a dielectric coating of Toriumi et al. into the method of Walt et al in view of Everett et al. , in order to improve the synthesis of array of biomolecules. An ordinary practitioner would have been motivated to combine and substitute a composition, wherein the reflective coating is a dielectric coating of Toriumi et al. into the method of Walt et al in view of Everett et al. in order to achieve the express advantages , as noted by Toriumi et al., of an invention which provides microspheres which are self-retroflecting.

***Response to Amendment***

6. In response to amendment, previous 102 and 103 rejections are hereby withdrawn.

However, new 103(a) rejections have been included.

***Response to Arguments***

7. Applicant's arguments with respect to all pending claims have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 1634

***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arun Chakrabarti, Ph.D. whose telephone number is (703) 306-5818.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion, can be reached on (703) 308-1119.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group analyst Chantae Dessau whose telephone number is (703) 605-1237.

Papers related to this application may be submitted to Technology Center 1600 by facsimile transmission via the P.T.O. Fax Center located in Crystal Mall 1. The CM1 Fax Center numbers for Technology Center 1600 is (703) 872-9306. Please note that the faxing of such papers must conform with the Notice to Comply published in the Official Gazette, 1096 OG 30

(November 15, 1989).

Arun Kr. Chakrabarti  
**ARUNK.CHAKRABARTI**  
Arun Chakrabarti  
Patent Examiner  
Art Unit 1634

October 16, 2003

*Gary Benzion*  
**GARY BENZION, PH.D.**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 1600**